

1. In the human body most of the digestion occurs in the:

- (1) Stomach (2) Pancreas (3) **Small intestine** (4) Large intestine.

Ans: 3

2. The unit of magnetic flux is:

- (1) Weber (2) Henry (3) Coulomb (4) **Tesla**

Ans: 4

Note: Tesla - The SI derived **unit of magnetic flux** density is the tesla, which is defined as a volt second per square meter

3. Tachometer is used to measure:

- (1) **RPM** (2) Volt (3) Current (4) Velocity.

Ans: 1

Note: A **tachometer** is an instrument designed to **measure** the rotation speed of a shaft or disk. **Tachometers** generally **measure** rotations per minute (RPM)

4. Which of the following cannot convert AC to DC?

- (1) Diode (2) Mercury arc rectifier (3) Converter (4) **Transformer**

Ans: 4

5. Electrical energy is measured in the term of:

- (1) Watt (2) Volt (3) Ampere (4) **Kilowatt-hour.**

Ans: 4

Note: Electrical energy is the product of electrical power and time, and it is measured in joules.

It is defined as "1 joule of energy is equal to 1 watt of power is consumed for 1 second".

Energy (W) = Power x Time

1 Joule = 1 watt x 1 Second

- Watt-hour is the standard used for measurement of energy, describing the amount of watts used over time.

Energy in watt-hours = Power in watts x time in hours

- Kilowatt-hour can be described as one kilowatt hour is the amount of energy drawn by the 1000 watts appliance when used for an hour, where, One kilowatt = 1000 watts
- Energy in kilowatt-hours = Power in kilowatt x time in hours
- Megawatt-hour is the unit of energy which normally used when output of power generation is very large. In power plant 'Megawatt' term is used to show the power generation capacity of power plant.
- One megawatt (1 MW) = 1,000 kilowatt = 1,000,000 watt

6. Pascal is a unit of:

- (1) Temperature (2) Power (3) Pressure (4) Energy.

Ans: 3

7. Commutator segments in a D.C. machine are separated by thin layers of:

- (1) Synthetic rubber (2) Paper (3) PVC (4) Mica

Ans: 4

8. In diesel engine, the fuel is ignited by

- (1) a glow plug
(2) a spark plug
(3) an injector
(4) virtue of temperature attained due to compression of air.

Ans: 4

9. The voltage applied across the lamp of a 3 cell (dry cell) torch will be –

- (1) 1.5 volts (2) 3 volts (3) 4.5 volts (4) 6 volts.

Ans: 3

10. UV rays are used in water treatment for

- (1) Study of dirt/particles movement (2) sterilisation
(3) coagulation (4) removal of temporary hardness

Ans: 2

Note: Ultra Violet (UV) light disinfection is one water treatment system that can be used to remove most forms of microbiological contamination from water.

11. The process of coating of Zinc on iron is

- (1) Electroplating (2) Cladding (3) Galvanizing (4) Metal coating.

Ans: 3

12. Which planet has prominent ring around it.

- (1) Uranus (2) Mars (3) Jupiter (4) Saturn

Ans: 4

Note:

SATURN'S RINGS

The rings around Saturn were discovered by an astronomer called Galileo Galilei nearly 400 years ago. He used a very simple telescope that he constructed himself from lenses and pointed it at the planets in the night sky.

Later astronomer used bigger and better telescopes to find rings around all of the outer gas giant planets: Jupiter, Saturn, Neptune and Uranus. These planets, unlike others in our system, consist largely of gas.

It was not until 1655 that Christiaan Huygens, the Dutch mathematician and scientist, became the first person to describe them as a disk surrounding the planet.

13. In which country is Silicon Valley located?

- (1) India (2) USA (3) Canada (4) Russia

Ans: 2

14. is used to convert A.C. to D.C.

- (1) Rectifier (2) inverter (3) transistor (4) none of these

Ans: 1

15. To convert D.C. to A.C. ----- is used

- (1) Rectifier (2) inverter (3) transistor (4) none of these

Ans: 1

Note: **An inverter is used to convert** the direct current into alternating current electricity.

16. A converter/inverter/UPS is used to convert A.C. to D.C.

Note:

Converters: Converters are used to convert AC power to DC power. Virtually all the electronic devices require converters. They are also used to detect amplitude modulated radio signals. They are also used to supply voltage for welding. Converters can be used for DC-DC conversion. Here, inverter converts DC to AC, then a transformer is used to convert it back into DC.

Inverters are used to convert DC electricity from sources like solar panels, batteries or fuel cells to AC electricity.

Micro-inverters are used to convert DC power from solar panels to AC for the electric grid.

UPS or Uninterrupted power service uses inverter to supply AC power when main power is not available. It is also used for induction heating

17. Which of the following rays are used for heating applications?

(1) **infrared rays** (2) ultra violet rays (3) cathode rays (4) canal rays.

Ans: 1

18. A generator converts:

(1) Mechanical energy into light energy.
(2) Electrical energy into mechanical energy.
(3) **Mechanical energy into electrical energy**
(4) None of these.

Ans: 3

19. When the speed of a body is doubled its kinetic energy becomes

(1) Double (2) Half (3) **4 times** (4) $\frac{1}{4}$ th

Ans: 3

20. Winding a watch is actually the process of storing

(1) Electrical energy (2) Pressure energy
(3) Kinetic energy (4) **Potential energy**

Ans: 4

21. A person climbing a hill bends forward in order to

- (1) Avoid slipping
(3) Reduce fatigue

- (2) Increase speed
(4) Increase stability

Ans:4

22. An object weighs most in

- (1) Air (2) Water (3) Oxygen (4) Vacuum

Ans:4

23. The best conductor of heat among liquids is

- (1) Water (2) Mercury (3) Ether (4) Alcohol

Ans:2

24. Precipitation is maximum when

- (1) Temperature is high and air is dry (2) Temperature is high and air is humid
(3) Temperature is low and air is humid (4) Temperature is low and air is dry

Ans:2

25. Source of energy for the universe is

- (1) Sun (2) Geothermal (3) Space (4) Atmosphere

Ans:1

26. Primitive man first learnt

- (1) To make fire (2) To tame animals
(3) To make a wheel (4) To grow grain

Ans:1

27. Which planet is closest to the sun?

- (1) Mercury (2) Pluto (3) Earth (4) Jupiter

Ans:1

28. What is the unit of measurement of distance of stars?

- (1) Light year (2) Fathoms
(3) Nautical miles (4) Kilometers

Ans:1

29. Nautical miles is used in the travel of

(1) Road transport and Railways (2) Ships and Aeroplanes/Flights

(3) Railways and Ships (4) None

Ans:2

30. What is measured on the Richter scale?

(1) Wind velocity (2) Intensity of Earth quakes

(3) Solar Radiation (4) None.

Ans:2

31. The first Nuclear Power Plant in India was established at the following place

(1) Kota (2) Tarapur (3) Kalpakkam (4) Thumba

Ans: 2

32. Cetane number of diesel fuel is a measure of

(1) Volatility (2) Delay period

(3) API Specific gravity (4) Ignition quality

Ans: 4

Note: Cetane number of a diesel engine fuel is indicative of its ignition characteristics.

33. Cryogenics is

(1) Study of crystal (2) Study of genetics

(3) Science of very low temperature (below -150°C) (4) Study of colours

Ans: 3

34. The lightest of the commercial metal is

(1) Tin (2) Aluminium (3) Copper (4) Magnesium

Ans: 4

Note: Magnesium, aluminium and titanium are light metals of significant commercial importance. Their densities, i.e., $\text{Mg}=1.736$, $\text{Al}=2.7$ and Titanium 4.5 g/cm^3 respectively; tin 5.75 grams/cm^3 and Lithium 0.534 g/cc .

35. Best conductor of heat among liquid is

- | | |
|-------------|-------------|
| (1) water | (2) Ether |
| (3) Alcohol | (4) Mercury |

Ans: 4

36. The weight of the body is

- (1) The same everywhere on the surface of the earth
(2) Maximum at the poles
(3) Maximum at the equator
(4) More on the hills than in the pole

Ans : 2

37. Which of the instruments is used for measuring humidity ?

- | | |
|----------------|-----------------|
| (1) Barometer | (2) Thermometer |
| (3) Hygrometer | (4) Hydrometer |

Ans: 3

Note: Psychrometrics, psychrometry, and hygrometry are names for the field of engineering concerned with the physical and thermodynamic properties of gas-vapor mixtures

38. Choose the incorrect statement:

- | | | |
|-----------------------------|---|--------------------------|
| (1) 1 atmosphere | - | 10.3 m of water column |
| (2) 14.5 psi | - | 14.5 kgf/cm ² |
| (3) 1 atmosphere | - | 76 cm of Hg. |
| (4) 13.6 mm of water column | - | 1 mm of Hg column |

Ans:2

Note: (Right answer is 10 kgf/cm²)

39. Choose the incorrect statement:

- | | | |
|--------------------------------|---|------------------|
| (1) Diamond | - | Hardest material |
| (2) Carbon | - | Non Metal |
| (3) Water | - | denser at 0°C |
| (4) Hydrogen ion concentration | - | pH. |

Ans:3

Note : (Right answer is 4°C)

40. Choose the incorrect statement:

- | | | | |
|-----|--------------|---|--|
| (1) | Malleability | - | Ability to be machined |
| (2) | Toughness | - | Resistance to brittle fracture. |
| (3) | Hardness | - | Resistance to wear or scratch or indentation |
| (4) | Ductility | - | Ability to be drawn in wires/rods. |

Ans:1

(Right answer is ability to draw plates/sheets)

41. Choose the incorrect statement:

- (1) A speed of 10 m/s = 36kmph
- (2) Poisson's ratio for mild steel = 0.3
- (3) Span of a projectile is max at the firing angle of 45°

Ans. All are correct.

42. Dialysis is used for patients having

- (1) Kidney trouble (2) Liver diseases (3) Lung trouble (4) Heart failure

Ans. 1

Note: What is dialysis?

Dialysis largely replicates the functions of the kidneys in patients with chronic kidney failure. Hemodialysis and peritoneal dialysis take over the key tasks of the kidneys, removing waste materials, toxins, excess salt and fluids from the body.

<https://www.freseniusmedicalcare.com/en/patients-families/understanding-dialysis/>

43. Primitive man first learnt

- | | |
|---------------------|---------------------|
| (1) To make fire | (2) To tame animals |
| (3) To make a wheel | (4) To grow grains |

Ans.1

44. The first metal to be used by man was

- | | |
|---------------------|---------------------|
| (1) Copper | (2) To tame animals |
| (3) To make a wheel | (4) To grow grains |

Ans.1

Note-Copper was first used by man over 10,000 years ago. A copper pendant discovered in

what is now northern Iraq has been dated about 8700 B.C. For nearly five millennia copper was the only metal known to man, and thus had all the metal applications.

Not until about 4000 BC did gold appear on the scene as man's second metal. By 3000 B.C., silver and lead were being used and the alloying of copper had begun, first with arsenic and then with tin. For many centuries, bronze reigned supreme, being used for plows, tools of all kinds, weapons, armor, and decorative objects. Though copper came from the island of Cyprus-from whence its name-and numerous other sites in the Middle East, the origin of the tin in the bronze is still a mystery.

The Bronze Age suddenly ended at about 1200 BC, with the general collapse of the ancient world and the interruption of international trade routes. The supply of tin in particular dried up and the Iron Age was ushered in, not because iron was a superior material, but because it was widely available. The deliberate alloying of iron with carbon to form the first steels did not occur for centuries.

<https://www.copper.org/education/history/us-history/#:~:text=Copper%20was%20first%20used%20by,had%20all%20the%20metal%20applications>

45. The weight of a body is
- (1) The same everywhere on the surface of the earth
 - (2) Maximum at the poles
 - (3) Maximum at the equator
 - (4) More on the hills than in the plants

Ans: 2 (where 'g' is higher than at equator)

46. A person weighs more in a lift which is
- (1) Moving up with a constant velocity
 - (2) Moving down with a constant velocity
 - (3) Accelerating upward
 - (4) Accelerating downward

Ans: 3

Note: 1: the elevator accelerates upward; one feel heavier

2: the elevator is at rest; the scale shows actual weight

3: the acceleration of the elevator is downward and equal to the acceleration due to gravity; you and the elevator can be considered to be in free fall, because the scale does not exert any force

47. The work done in holding a weight of 20 kg. at the height of 1 m above the ground is
- (1) Zero
 - (2) 20 J
 - (3) 200 J
 - (4) None of these

Ans: 1 (since the displacement is zero)

48. Winding of a watch is actually the process of storing

- (1) Electrical energy
- (2) Pressure energy
- (3) Kinetic energy
- (4) Potential energy

Ans: 4

49. Perspiration is maximum when

- (1) Temperature is high and air is dry
- (2) Temperature is high and air is humid
- (3) Temperature is low and air is humid
- (4) Temperature is low and air is dry

Ans: 2

50. The universal law of gravitation was propounded by

- (1) Kepler
- (2) Galileo
- (3) Newton
- (4) Copernicus

Ans: 3.

Note: Nicolaus Copernicus was a Renaissance-era mathematician, astronomer, who formulated a model of the universe that placed the Sun rather than Earth at the centre of the universe.

Newton's law of gravitation, statement that any particle of matter in the universe attracts any other with a force varying directly as the product of the masses and inversely as the square of the distance between them.

Galileo has been called the "father of observational astronomy". He made telescopic discoveries, including the four largest moons of Jupiter

Ptolemy, an Egyptian astronomer, mathematician, and geographer whose geocentric (Earth-centred) model of the universe now known as the Ptolemaic system.

Johannes Kepler, German astronomer who discovered three major laws of planetary motion: (1) the planets move in elliptical orbits with the Sun at one focus (for ellipse there are 2 foci); (2) the time period to traverse any arc of a planetary orbit is proportional to the area of the sector between the central body and that arc (the "area law"); and (3) there is an exact relationship between the squares of the planets' periodic times and the cubes of the radii of their orbits.